Thompson

# The Canadian Entomologist

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No. 12

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EDITOR:

DR. J. McDUNNOUGH

ENTOMOLOGICAL BRANCH

DEPARTMENT OF AGRICULTURE, OTTAWA.

DECEMBER, 1934

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ORILLIA NEWS-LETTER PRINT

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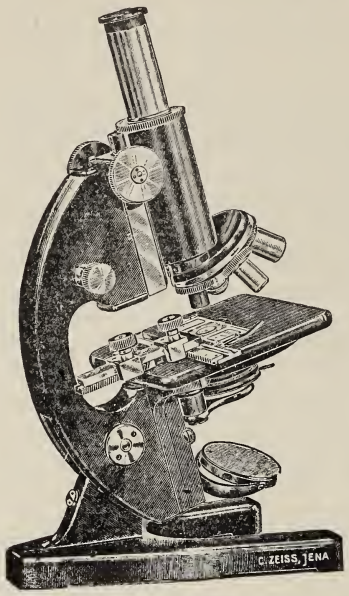


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# The Canadian Entomologist

LXVI ORILLIA, DECEMBER, 1934 No. 12

## BEHAVIOR NOTES ON CERTAIN SOLITARY WASPS*

BY PHIL RAU,
Kirkwood, Missouri.

*Sphex (Ammophila) nigricans.* Dahl. Several nests were seen on October 12, 1930, at Pittsburgh Lake, Ill. (Opposite St. Louis, Mo.). The mothers were excavating nests although it was very late in the season. The burrows in the ground were "L" shaped; the neck, one-half inch in diameter by one-half inch long; the pocket at the bottom, one-inch wide by three-fourths inches deep. I found one caterpillar at the bottom of each of the three nests I opened. The egg was attached to the caterpillar dorso-laterally on the fifth segment in two cases while in the third it was attached to the sixth segment. The caterpillars, only lightly paralyzed, were so very lively that I was worried about the safety of the attached eggs. Two of the caterpillars were encrusted with earth; this indicated that they were subterranean and that the wasp mothers did some underground exploration in hunting them.

*Sphex (Ammophila) procerus* Dahl. This beautiful wasp, found occasionally about St. Louis, was also taken at Old Mines, Mo., feeding on flowers of the white snakeroot. On another occasion a specimen was seen at the Missouri Botanical Garden delving deeply into the flowers of the sedum, *Sedum spectabile.* This flower was also chosen by a large number of honey bees; both bees and wasps almost totally neglected enormous patches of other plants blooming nearby.

*Sphex (Ammophila) pictipennis.* This species is plentiful about St. Louis and an account of its habits appears in "Wasp Studies Afield." I merely want to record here the existence of a dipterous mimic. Dozens of two-winged flies that resemble this wasp were seen at Allenton, Mo., on August 17, 1930, on the banks of the Meramec River. This fly was identified by Dr. C. T. Greene as *Systropus macer* Loew. I took the first ones in the net thinking they were Ammophila wasps; all were seen very close to the nesting site of the wasps. The critics of mimicry often say that mimicry means nothing unless both model and mimic inhabit the same area. Here at Allenton, both model and mimic thrive side by side.

*Trypoxylon tridentatum* Pack. A twig taken at Kirkwood, Missouri, June 2, 1928, gave forth three specimens of this wasp and three parasitic cuckoo wasps (*Chrysis* sp.) The parasites emerged one each on June 10, 16 and July 1, 1928; the wasps emerged on June 16, 20 and 28.

*Pemphredon bipartior* Fox. A twig with a nest of this species taken at Kirkwood, Mo., in December, 1927, gave forth eight adults the following year, between May 30 and June 5. One cell was filled with many individuals of an unidentified plant louse, on which the young fed.

*Hoplisus (Hoplisoides) nebulosus* Pack. Several mothers seen digging in the

*All wasps were kindly identified by Dr. Grace Sandhouse.

white sand at "Sand Cave" near Festus, Mo., on September 6, 1929.

*Timulla prometha* Blake.

*Dasymutilla occidentalis* Linn.

*Dasymutilla sparsa* Fox.

On the sandy bank of the Meramec River, at Allenton, Mo., on August 24, 1930, from three to six females of each of the above three species were taken within an hour. There were several nests of solitary bees and wasps in the same area.

*Dasymutilla allardi* Roh. One female taken at Kimmswick, Mo., September 28, 1930. It fed on honey and lived about nine days in confinement.

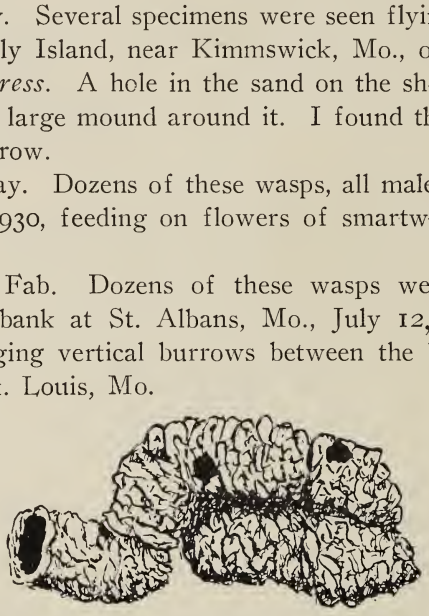
*Bicyrtes quadrifasciata* Say. This wasp was seen flying high in the air carrying under her body a bug nymph of *Anasa tristis* DeGeer. She evidently had a nest in the sandy loam on the banks of the Meramec River. The prey was not killed outright and six hours later could still twitch some of its legs. This observation was made August 23, 1930, at Allenton, Missouri.

*Bicyrtes ventralis* Say. Several specimens were seen flying in the hot sun close to the ground on Chestly Island, near Kimmswick, Mo., on July 29, 1930.

*Tachytes elongatus Cress.* A hole in the sand on the shore of Meramec River at Allenton, Mo., had a large mound around it. I found this wasp at the bottom of this twelve-inch burrow.

*Eucerceris zonatus* Say. Dozens of these wasps, all males, were seen at Allenton, Mo., August 17, 1930, feeding on flowers of smartweed and also on white snakeroot.

*Philanthus gibbosus* Fab. Dozens of these wasps were seen making horizontal nests in a clay bank at St. Albans, Mo., July 12, 1931, and about ten mothers were seen digging vertical burrows between the bricks of a back yard walk in the heart of St. Louis, Mo.



Mud nest of Pseudagenia architecta (x1½).

*Pseudagenia architecta* Say. The nests of this species are usually two celled and made of mud; the cells fit one into the other and are often found inside the heavy white cocoon of a spider under the bark of trees.* One such two celled nest gave forth adults on August 28, 1930. A three celled nest, taken at Allenton, in January, 1928, gave forth three adults between June 2 and 5, 1928. The three cells were separate and distinct although they were held close together by the surrounding belt of a spider cocoon. A third nest had six cells and was oddly shaped (Fig. 1). This however was not built in a spider web, but was constructed in a mat of dead grass under a box of dirt in my back yard. Five adults (2 males and 3 females) emerged between June 10 and 16, 1932. The fact that some of the adults emerge in early June and others in late August makes one suspect that there are two generations each year.

*Wasp Studies Afield pp. 82-83, 1918.

*Angeniella annecta* Banks. A mud nest of seven neat cells was taken at Rankin, Mo., from under the bark of a fallen log on July 10, 1931; one cell was completed and ready to be filled; one cell was sealed and had a newly laid egg on a spider; one cell had an egg and two had very young larvae, and the balance of cells contained larvae that had already spun the cocoon. The immature spider that carried the egg was identified as *Lycosa* sp., by Miss Elizabeth Bryant. The spider had one leg missing and was paralyzed, but still responded to stimulus three days after it was taken from the cell.

*Angeniella obscura* Banks. A mud nest taken in St. Louis County, gave forth four adults of this species between August 1 and 4, 1928.

*Angeniella bombycina* Cress. Several pretty mud cells taken from under bark at Allenton, Mo., gave forth two adults between May 18 and June 5, 1928, and several others emerged July 28 from a nest taken at Antonia, Mo.

*Angeniella petiolata* Cress. One wasp emerged June 10, 1929, from a resealed cell of the pipe organ wasp, *Trypoxylon (albitarse) politum*. The mother built her own small cell inside of the large one and then sealed the big opening with mud.

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## A CONTRIBUTION TO THE INSECT FAUNA OF TIMAGAMI

BY A. W. A. BROWN,
Department of Biology, University of Toronto.

(Continued from Page 252)

### HYMENOPTERA.

Species of suborder Chalastogastra are retained at Washington, identifications being incomplete.

BRACONIDAE.

Identified by C. F. W. Muesebeck, Washington, and by (marked*) G. S. Walley, Ottawa.

VIPIINAE.

1. *Atanycolus simplex* (Cress). July 30. McB. On W. Pine bark. Aug. 10. B.I. In spider-web on outside of laboratory.
2. *Microbracon apicatus* (Prov.) June 3. B.I. On grass in open pasture.

SIGALPHINAE.

3. **Chelonus sericeus* (Say). Aug. 5. B.I. Open sunny places around Ball-field trail.

MICROGASTERINAE.

4. *Apanteles lateralis* (Prov.). Aug. 10. S.C. On Osmunda regalis.
5. *Apanteles phthorimaeae* Mues. Aug. 15. B.I. Ball-field trail.

METEORINAE.

6. *Meteorus dimidiatus* (Cress.). Aug. 1. B.I. On flowers, openings around Ball-field.

ALYSIINAE.

7. *Coelinidea* sp. Sept. 1. S.P. B. Spruce swamp. Sweeping Carex and Chamaedaphne.

ICHNEUMONIDAE.

Identified by R. A. Cushman, Washington, and by (marked *) G. S. Walley, Ottawa.

LYSIOGNATHINAE.

8. *Amblyteles acerbus* (Cress.) June 10. E.B.I. trail.
9. *Amblyteles funestus* (Cress.) June 10. E.B.I. trail.
10. *Amblyteles nanodes* Cush. Aug. 23. B.I. S.E. side of Ball-field.
11. *Amblyteles vescus* (Prov.) June 6. E.B.I. Blueberry and Red Pine.
12. *Platylabus* sp. ? June 11. G.L.P.
13. *Phaeogenes* sp. June 10. E.B.I. trail. Sept. 10. B.I. On flowers in Ball-field.

CRYPTINAE.

14. *Cryptus exilis* Prov. June 10. E.B.I. trail.
15. *Cryptus canadensis* Prov. July 27. B.I. Ball-field trail.
16. *Echthrus abdominalis* Cress. June 11. G.L.P.

ICHNEUMONINAE.

17. **Bathycetes scutellaris* (Cress.) Aug. 1. B.I. On flowers, openings around Ball-field.
18. **Lissonota americana* (Cress.). Aug. 23. B.I. S.W. end of Ball-field. Aug. 29. High ridge north of G.L.P. Both on Solidago.
19. **Lissonota frigida* (Cress.) Aug. 7. B.I. Inside laboratory.
20. **Lissonota laevigata* (Cress.) Aug. 23. B.I. S.W. end of Ball-field.
21. **Lissonota varia* (Cress.) Aug. 15. B.I. Sweeping Hazel and Pteris near Ball-field.
22. *Lissonota* sp. Aug. 22. I. 340. Sweeping.
23. *Glypta* sp. July 22. B.I. Ball-field trail.
24. **Ephialtes pedalis* (Cress.) June 11. G.L.P.
25. **Ephialtes tenuicornis* (Cress.) June 10. E.B.I. trail. Aug. 28. Sp. L.P. on leaves.
26. *Polysphincta* (?) *burgessi* Cress. June 8. B.I. From under W. Spruce bark.
27. *Polysphincta* (?) *slossonae* Davis. Aug. 2. L.L.P. Sept. 15. I. 315. On underbrush.
28. **Polysphincta* (?) *texana* (Cress.) Aug. 23 and 30. B.I. Inside and outside of laboratory.
29. **Rhyssa persuasoria* (L.) June 11. G.L.P.
30. *Coleocentrus* probably *minor* Cush. June 11. G.L.P.
31. **Xorides stigmapterus* (Say). Aug. 21. B.I. Inside cottage.
32. *Ichneumon occidentalis* (Cress.) June 11. G.L.P.
33. *Tromatobia rufovariata* (Cress.) Sept. 1. S.P. Black Spruce swamp.
34. *Zaglyptus incompletus* (Cress.) Aug. 23. B.I. Around laboratory.

TRYPHONINAE.

35. **Exyston abdominalis* Cress. July 27. B.I. Ball-field trail.
36. *Parabates unguicularis* Cush. Sept. 22. I. 315. Inside cottage.
37. **Periope acthiops* Cress. Aug. 21. I. 340. On Anaphalis and Solidago.
38. **Metacoelus laevis* Cress. Sept. 1. S.P. Black Spruce swamp.

OPHIONINAE.

39. *Ophion bilineatum* Say. June 4. B.I. Attracted to light in laboratory.
40. *Therion sassacus* Vier. July 26. B.I. On Spiraea behind laboratory.
41. *Plectiscus* sp. Sept. 15. I. 315. On underbrush.

GASTERUPTIONIDAE.

Identification as for *Ichneumonidae*.

42. **Gasteruption tarsatorium* (Say). July 22. B.I. On flowers around laboratory. Aug. 1 and 5. B.I. Open sunny places around Ball-field.

43. *Gasteruption incertum* (Cress.) Aug. 1. B.I. On screening of laboratory.

PROCTOTRYPIDAE.

Identified by C. F. W. Muesebeck, Washington.

44. *Phaenoserphus abruptus* (Say). Aug. 28. Sp. L.P. On Aster flowers Sept. 15. I. 315. Inside window of cottage.

SCELIONIDAE.

Identified by C. F. W. Muesebeck, Washington.

45. *Scelio calopteni* Riley. Sept. 10. B.I. On flowers in Ball-field.

EULOPHIDAE.

Identified by A. B. Gahan, Washington.

46. *Tetrastichus hylotomae* (Ashm.). Aug. 22. I. 340. Sweeping.

The following Hymenoptera, unless otherwise stated, identified by Miss G. A. Sandhouse, Bureau of Entomology, Washington.

PSAMMOCHARIDAE. PSAMMOCHARINAE.

47. *Psammochares* (*Pompiloides*) *cylindricus* (Cress.) Aug. 23. B.I. On Solidago. S.W. end of Ball-field. Sept. 1. S.P. On fine gravel beach.

48. *Psammochares* (*Pompiloides*) sp. July 27. B.I. On Spiraea behind laboratory. Aug. 23. B.I. On Solidago, S.W. end of Ball-field.

49. *Psammochares* (*Sophropompilus*) *hyacinthinus* (Cress.) Aug. 23. B.I. On Solidago, S.W. end of Ball-field.

50. *Psammochares* sp. June 10 E.B.I. trail. Aug. 22. I. 340.

51. *Deuteragenia pulchripennis* (Cress.) Aug. 25. B.I. Inside screening of laboratory.

CEROPALINAE.

52. *Euspongia bipunctata* Say. Aug. 21. B.I. On window of laboratory.

53. *Ceropales fraterna* Sm. Aug. 1. B.I. On flowers, openings around Ball-field.

CHRYSIDIDAE.

54. *Chrysis* (*Tetrachrysis*) sp. Aug. 5, 15, 21 and 23. B.I. Inside verandah of laboratory. July 22. B.I. On woodpile near laboratory. Aug. 21. I. 340.

TIPHIIDAE.

55. *Myrmosa unicolor* Say. July 23. B.I. On flowers, open young woods behind Ball-field.

FORMICIDAE.

Identified by M. R. Smith, State College, Mississippi.

FORMICINAE.

56. *Formica neogagates* Emery. No record.

57. *Formica fusca* gp. June 4.

58. *Camponotus herculeanus ligniperdus* var. *noveboracensis* Fitch. June 4 and 5. Surface of L.T. June 9. B. I. Under bark of felled White Pine.

59. *Camponotus herculeanus* var. *whymperi* Forel. June 4. P.B. Solitary wanderers under stones and wood.

VESPIDAE. EUMENINAE.

60. *Eumenes globulosa* Sauss. July 22. Aug. 5 and 23. B.I. On flowers, S.W. end of Ball-field.
61. *Ancistrocerus albophaleratus* (Sauss.) July 26. B.I. On Spiraea behind laboratory. Aug. 23. B.I. Inside laboratory.
62. *Ancistrocerus catskillensis* (Sauss.) July 22. B.I. On flowers around laboratory and on Ball-field trail. July 25. S.L.P. Looking for hole in bare earth. Aug. 22. I. 340.
63. *Ancistrocerus tigris* (Sauss.) Aug. 1 and 5. B.I. On flowers around Ball-field. Aug. 29. High ridge north of G.L.P.
64. *Ancistrocerus waldeni* (Vier.) July 26. B.I. On Spiraea behind laboratory. Aug. 1 and 5. B.I. On flowers around Ball-field.
65. *Ancistrocerus capra* (Sauss.) July 22 and 26. Aug. 1 and 5. B.I. On flowers around laboratory and Ball-field. Aug. 21 and 22. On Anaphalis and Solidago. I. 340.
66. *Symmorphus walshianus* (Sauss.) Aug. 5. B.I. On flowers, Ball-field trail.
67. *Odynerus leucomelas* Sauss. July 22 and Aug. 1. B.I. On flowers around laboratory and Ball-field.

POLISTINAE.

68. *Polistes fuscatus* var. *pallipes* Lep. Aug. 21 and 26. B.I. Inside verandah of laboratory. Aug. 29. High ridge north of G.L.P.
69. *Vespula maculata* (Linn.) Aug. 21. I. 340. On Anaphalis and Solidago.
70. *Vespula arenaria* (Fabr.) July 26. B.I. On flowers behind laboratory. Aug. 1. B.I. On flowers, openings around Ball-field.
71. *Vespula rufa* var. *acadica* (Sladen.) June 6. E.B.I. Open W. Pine stand. Emerging from hole in log.
72. *Vespula rufa* var. *consobrina* (Sauss.) June 3. B.I. Sunny openings in woods looking for nest sites? July 25. S.L.P. Aug. 10. S.C. On Osmunda regalis. Aug. 21 and 22. I. 340. On Solidago.
73. *Vespula vulgaris* (Linn.) June 3. B.I. Open pasture. June 10. E.B.I. trail. Aug. 21. I. 340.

SPHECIDAE. SPHECINAE.

74. *Sphex arvensis* (Dahlb.) Aug. 1. B.I. Tower trail. Aug. 1 and 5. B.I Openings around Ball-field. On flowers.
75. *Podalonia violaceipennis* (Lep.) Aug. 1 and 23. B.I. On flowers, openings around Ball-field. Sept. 14.

PSENINAE.

76. *Psen (Mimumesa) niger* Pack. July 24. W.L. Muskeg shore.
77. *Pemphredon angularis* Fox. June 9. B.I. Openings in young Birch woods. Aug. 6, 7, 23 and 28. B.I. Inside laboratory. Aug. 21. I. 340.
78. *Passaloecus rivertonensis* Vier. June 10. E.B.I. trail.

BEMBECINAE.

79. *Hoplisus (Pseudoplisus) gryponacinus* (Roh.) July 23 B.I. On flowers, open young woods behind Ball-field.
80. *Philanthus solivagus* Say. Sept. 10. B.I. On flowers in Ball-field.

81. *Philanthus bilunatus* Cress. July 22, 23 and 26. Aug. 1 and 5. B.I. On flowers around laboratory, Ball-field, and open young Birch woods.

CRABRONINAE.

82. *Solenius* (*Ectemnius*) *corrugatus* (Pck.). July 26. B.I. On Spiraea behind laboratory. Aug. 1. B.I. On flowers in Ball-field.
83. *Solenius* (*Ectemnius*) *montanus* (Cress.) Aug. 21. I. 340. On Anaphalis and Solidago.
84. *Solenius* (*Clytochrysus*) *obscurus* (Sm.) Aug. 5. B.I. Open sunny places around Ball-field trail.
85. *Solenius* (*Clytochrysus*) *nigrifrons* (Cress.) July 23. B.I. On flowers, open young woods behind Ball-field. July 26. B.I. On Spiraea behind laboratory. Aug. 22. I. 340. On Anaphalis and Solidago.
86. *Solenius* (*Xestacrabro*) *trifasciatus* (Say.) Aug. 1. B.I. On flowers, openings around Ball-field.
87. *Solenius* (*Lophrocrabro*) *singularis* (Sm.) July 26. B.I. On Spiraea behind laboratory. Aug. 1 and 5. B.I. On flowers, open sunny places around Ball-field. Aug. 21 and 22. I. 340. On Anaphalis and Solidago.
88. *Solenius producticollis* (Pck.) July 22 and 26. B.I. On flowers around laboratory. Aug. 1 and 5. B.I. On flowers, open sunny places around Ball-field.
89. *Crabro* (*Blepharipus*) *nigricornis* Prov. Aug. 1. B.I. On flowers, openings around Ball-field. Aug. 2. L.L.P.

HYLAEIDAE.

90. **Hylaeus modestus* Say. June 3 and July 22. B.I. On flowers in open pasture around laboratory.
91. *Hylaeus variifrons* (Cress.) July 22. B.I. On flowers around laboratory.

*Identified by C. E. Atwood, Toronto.

ANDRENIDAE.

Identified by C. E. Atwood, Department of Biology, University of Toronto, and by (marked * )G. A. Sandhouse, Washington.

92. *Andrena crataegi* Rob. June 10. E.B.I. trail.
93. *Andrena flavoclypeata* Sm. June 3. B.I. Flowers in open pasture.
94. *Andrena grandior* Ckll. July 22 and 26. B.I. On flowers behind laboratory.
95. *Andrena hirticincta* Prov. Aug. 22. I. 340. On Anaphalis and Solidago.
96. *Andrena wheeleri* Graen. June 3. B.I. Flowers in open pasture.
97. *Andrena regularis* Mall. June 5. B.I. Flowers in open pasture.
98. *Andrena wilkella* Kby. June 3. B.I. Flowers in open pasture. —5. Surface of L.T.
99. *Andrena novaeangliae* Vier. June 11. G.L.P.
100. *Calliopsis andreniformis* Sm. July 24. W.L. Muskeg shore. July 27. B.I. Ball-field trail.
101. *Halictus lerouxii* Lep. July 22 and 26, Aug. 1. B.I. On flowers around laboratory and Ball-field.
102. *Halictus craterus* Lou. Aug. 5. Sept. 10. B.I. On flowers in Ball-field. Aug. 22. I. 340.
103. *Halictus inconditus* Ckll. Aug. 1 and 5. B.I. Open sunny places around Ball-field.

104. *Halictus cressonii* Rob. June 9. B.I. Openings in young Birch woods. Aug. 22. I. 340. Aug. 23. B.I. Around laboratory.

105. *Halictus provancheri* D. T. Aug. 21. I. 340. On Anaphalis and Solidago.

106. **Halictus* sp. poss. ♂ of *quebecensis* Crawford. Aug. 1. B.I. Openings around Ball-field.

107. **Halictus* sp. "Retained for further study" Aug. 1. B.I. Openings around Ball-field.

108. **Halictus viridatus* Lovell. June 3. B.I. Open pasture in flowers. —5. B.I. In Choke Cherry Blossom, near laboratory. —10. E.B.I. trail. July 22. B.I. On flowers around laboratory and on Ball-field trail. Aug. 1. B.I. Sunny openings around Ball-field. Aug. 22. I. 340.

109. **Nomada lepida* Cress. June 3. B.I. Openings in young Birch woods; searching the ground. June 10. E.B.I. trail. Searching earth bank facing south.

110. **Nomada* sp. June 6. E.B.I. Open W. Pine stand. Searching among leaves. June 10 as for *N. lepida.*

111. **Sphecodes* sp. June 3. B.I. On grass in open pasture.

112 **Sphecodes* sp. Aug. 1. B.I. Openings around Ball-field.

113. **Sphecodes* sp. June 6. E.B.I. Open W. Pine stand. Searching bank.

"Several species of *Sphecodes* have been described from this region; they are not represented in our named collection and cannot be interpreted from the description." (G.A.S.).

ANTHOPHORINAE.

114. **Anthophora* (*Clisodon*) *furcatus terminalis* Cress. July 23. B.I. Open young woods behind Ball-field. Aug. 1. B.I. Tower trail. Aug. 29. G.L.P. On Aster macrophyllus.

MEGACHILIDAE.

115. *Coelioxys* sp. June 22. B.I. Ball-field trail.

116. *Coelioxys* sp. Aug. 6. S.C. On Eupatorium.

117. *Megachile infragilis* Cress. Aug. 21. I. 340. On Anaphalis and Solidago.

118. *Megachile vidua* Sm. Aug. 10. S.C. On Eupatorium.

119. *Osmia atriventris* Cress. June 6. E.B.I. Blueberry and Red Pine. June 11. G.L.P.

BOMBIDAE.

Identified by C. E. Atwood, Toronto.

120. *Bremus terricola* Kby. June 3, July 22 and 26. B.I. On flowers behind laboratory. June 10. E.B.I. trail. On Aralia. Aug. 1. B.I. Flowers in Ball-field.

121. *Bremus ternarius* Say. July 23 and 26, Aug. 1. Flowers around laboratory and Ball-field. Aug. 22. I. 340.

122. *Bremus perplexus* Cress. June 10. E.B.I. trail. On Aralia.

123. *Bremus vagans* Sm. June 3, July 22 and Aug. 1. B.I. Around laboratory and Ball-field. Sept. 14. Portage Peninsula.

NUMERICAL SUMMARY

| *Order* | *Families* | *Genera* | *Species and Varieties* |
|---|---|---|---|
| Collembola | 2 | 5 | 7 |
| Orthoptera | 4 | 15 | 20 |
| Neuroptera | 1 | 2 | 2 |
| Ephemeridae | 1 | 1 | 3 |
| Odonata | 3 | 21 | 47 |
| Plecoptera | 1 | 1 | 1 |
| Corrodentia | 2 | 2 | 2 |
| Hemiptera | 12 | 27 | 35 |
| Homoptera | 5 | 20 | 27 |
| Coleoptera | 29 | 114 | 147 |
| Mecoptera | 1 | 1 | 1 |
| Trichoptera | 2 | 3 | 4 |
| Lepidoptera | 14 | 42 | 52 |
| Diptera | 42 | 148 | 219 |
| Hymenoptera | 17 | 67 | 123 |
| Total | 136 | 469 | 690 |

## THE NYMPHS OF AESCHNA JUNCEA L. AND A. SUBARCTICA WLK.

BY E. M. WALKER,
Department of Biology, University of Toronto.

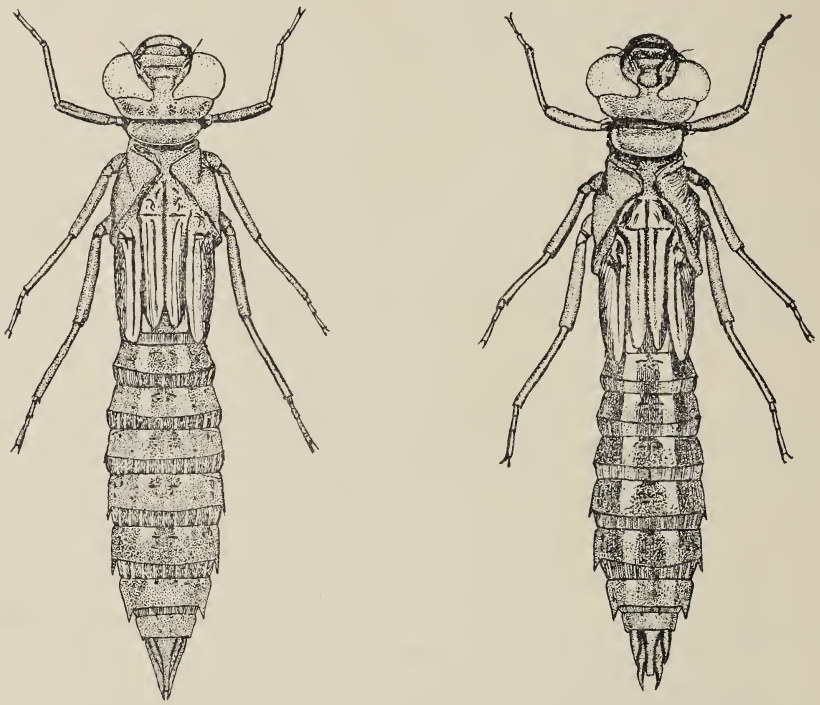
In the writer's treatise on the North American species of the genus Aeschna (Walker, '12) the nymph of *A. juncea* L. was described from exuviae collected by the late Dr. F. Ris at Cierfs, Switzerland. One of the exuviae was accompanied by a teneral imago. A single female exuvia from Nipigon, Ont., very closely resembling the Swiss specimens, was tentatively referred in the same work (p. 98) to *A. subarctica* Wlk. rather than *juncea*, although both species were flying at the spot where the exuvia was found. This was because of slight differences from typical *juncea*, particularly the slightly longer "lateral appendages" (cerci), which would correspond to the longer appendages of the adult female of *subarctica*. Later events, however, have proved this supposition to be incorrect. The Nipigon exuvia belongs to *juncea*, as was indicated by the finding of identical exuviae, together with the newly emerged adults at Lowbush, Lake Abitibi, Ont., and Prince Rupert, B. C. Numerous exuviae were also found at Banff, Alta., on Aug. 8, 1921, on the margins of ponds along the railway, where *juncea* was flying in numbers, and nymphs were found at Prince Rupert and near the summit of Grouse Mt., Vancouver, B. C. *A. subarctica* is not known from these localities, not having been reported west of Manitoba. Finally the discovery of *A. subarctica* with its exuvia at The Pas, Manitoba, in 1931, furnished the proof that the Nipigon specimen could not belong to this species. the true nymph of *subarctica* being readily distinguishable from that of *juncea*.

### The nymph of **Aeschna juncea americana** (L) Bart.

As pointed out by the writer (op. cit.) American specimens of *Aeschna juncea* differ somewhat in the adult state from European, and more recently Bar-

tenef ('29) has divided the species into several races, the American form being regarded as one of these, the race *americana*.

The exuviae (text fig a) show no constant differences from European *juncea,* as represented by the Swiss specimens mentioned above with the addition of an exuvia from Ruppersdorf, Czechoslovakia, collected by the writer; but are slightly smaller, a little darker, and less distinctly marked. The two pale, longitudinal, dorsal stripes on the abdomen are laterally well defined on the first four or five segments, but, posterior to these segments, they become increasingly less distinct, tending to break up into pairs of spots, a pair at the anterior margin of each segment as far as the ninth or, in dark indiviudals, not distinguishable



Full grown nymphs of (a) **Aeschna juncea americana** Bart. (b) **A. subarctica** Wlk.

beyond the sixth or even fifth segment. These pale stripes are confluent on segment 1 and scarcely, if at all, divided mesially on segment 2 in most specimens, the median dark area being often indistinct anterior to 3. The contrast between pale and dark markings is usually less marked than in typical *juncea,* but I have a pale specimen from Prince Rupert which is indistinguishable from the typical race in regard to these markings. Usually the median area is no darker than the sides of the abdomen, even the dorsal puncta being but little deepened in colour, if at all. The lateral and dorso-lateral puncta are generally distinct, though inconspicuous, and the sides of the abdomen below the lateral scars are sometimes, but not always, slightly paler than the ground colour of the segments. The head, thorax and legs are, as in race *juncea,* practically concolorous or with ill-defined paler postocular bands along the sides of the head and pronotum.

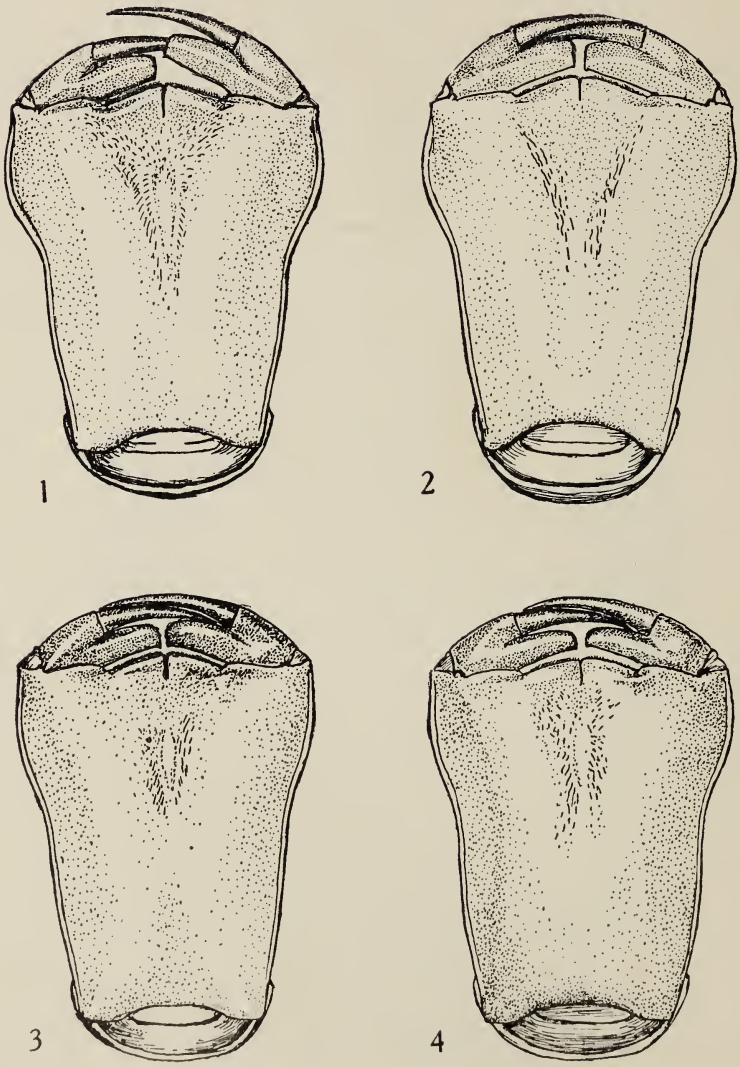
Labium (pl. 11, fig. 2) indistinguishable from that of race *juncea* (pl. 11, fig. 1); width of mentum at base about five-eighths of the width at the distal margin, the sides in the proximal three-fifths feebly diverging and barely convex, distally strongly convex, the greatest divergence before the distal end; median lobe occupying a little more than the middle third of the distal width of the mentum, broadly obtusangulate; palpal lobes about 1.5 times as broad as the base of the moveable hooks, truncated at apex with the outer angle somewhat rounded off, the inner angle with a minute, sometimes indistinct, tooth. Propleural processes (pl. 12, fig. 11) about equal in length, the anterior more slender than the posterior. Mesopleural processes* low and rounded (fig. 13). Abdomen as in race *juncea,* tending to average a little slenderer. Lateral spines (figs. 5, 9) a little longer than in race *juncea,* (fig. 8) those on segment 6 (fig. 16) not quite so vestigial, those on 8 reaching about three-quarters (in race *juncea* two-thirds) of the distance towards the base of seg. 9, those on 9 as far back as the middle of 10, or a little short of it. Paraprocts (inf. apps.) a little shorter than 9+10, the proportion being about seven-eighths, more rarely equal; cerci straight and substyliform, tapering to small, feebly incurved apices, usually about four-sevenths, or, in the female, sometimes only one-half, the length of the paraprocts; in the male, exceeding the length of the rudiment of the adult inferior appendage by one-third the length of the latter. Apices of gonostyli of female just reaching the hind margin of the ninth abdominal sternum.

Total length (mm.) 37-41; hind wing 6.8-7.8; hind femur 6.2-6.9; width of head 7.7-8.0; width of abdomen 6.8-7.0.

## The nymph of **Aeschna subarctica** Wlk.

Since this species was described (Walker, '12) a closely related form has been found to exist in many parts of Europe. Its discovery in Germany was reported by Ris ('27) who sent me a pair for comparison with *A. subarctica,* with which species he recognized its close affinity. While differing slightly in colour-pattern, particularly in the much broader lateral thoracic bands, and in the blunter superior appendages of the male, I found no more important differences between the European form and the North American *subarctica* than those which distinguish European and North American specimens of *A. juncea.* I therefore confirmed Dr. Ris's opinion that the European specimens were probably not distinct from *A. subarctica.* Since the publication of Ris's paper the same form has been reported as *A. subarctica* by a number of European writers from many localities in middle Europee. Before Ris's paper appeared, however, Djakonov ('22) described briefly a new species of Aeschna from northern Russia under the name of *A. clizabetae* and this form was more fully characterized later by Valle ('29) and Bartenef (29, '30a). Valle tabulated the differences between *A. elizabetae* and *subarctica* and came to the conclusion that these differences were too trivial to warrant specific distinction but that *clizabetae* was probably deserving of rank as a European race of *A. subarctica.* I have a pair of *clizabetae* from Finland, kindly sent to me by Mr. Valle and also a male of the form from central Europe, taken in the Black Forest and sent to me by the late Dr. Ris. These

*These are the slightly projecting lower margins of the mesepisterna and mesepimera, serially homologous with the propleural processes.




NYMPHS OF AESCHNA JUNCEA L. AND A. SUBARCTICA WLK.

European specimens are in my opinion con-specific but I should hesitate to draw any further conclusions from a comparison of so few specimens, as to whether they represent distinct races or not. Nevertheless the descriptions and figures by European authors (Valle, op. cit.; Bartenef '29, '30a; Schmidt, '29; Lieftinck '29) seem to indicate clearly that the typical *elizabetae* from Russia and Finland differs somewhat in colour-pattern, though perhaps not structurally, from the form which inhabits more southern parts of Europe. Bartenef ('30b) urges the necessity of a detailed comparison of all three forms, emphasizing the importance of the characters of the accessory genitalia of the male, as revealed in cleared microscopical preparations. On this question I am not at present able to throw any light. For the present I am following the prevailing view that we have to do with one species but shall employ the racial name *elizabetae* for both European forms, although my observations on the nymph apply to the form which inhabits central Europe.

The life history of *Aeschna subarctica elizabetae* has been described at some length by Munchberg ('30) whose account is illustrated by a photograph of the full-grown nymph and some figures of the anal appendages and prothoracic processes.

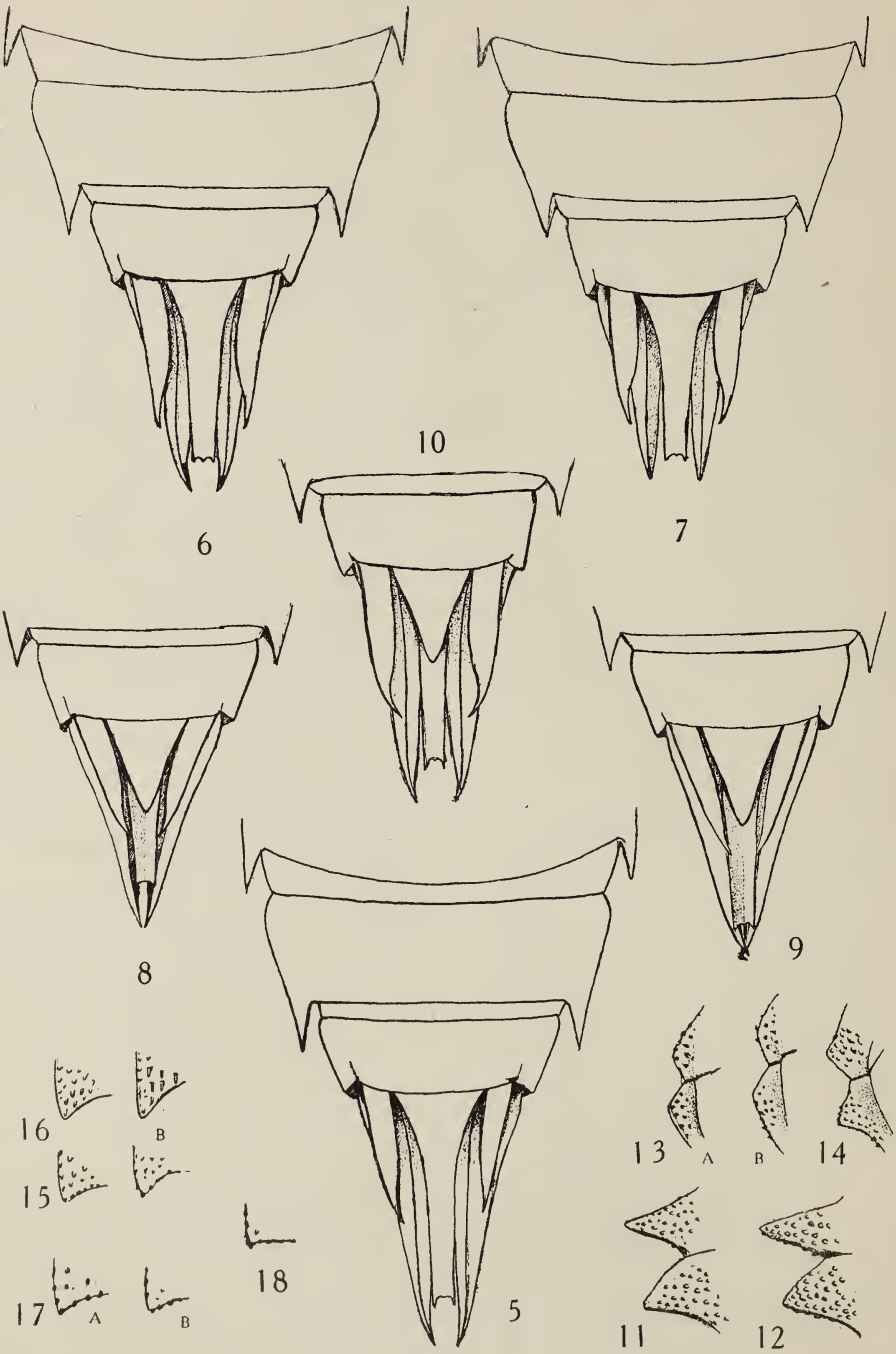
During a visit to Czechoslovakia in 1928 I received two nymphs from the late Dr. F. Ris, who sent them in moist cotton batting, together with an adult male from the same locality, viz., the Black Forest, Wurtemberg, Germany. One of the nymphs, an immature male, was dead on arrival; the other, a full-grown female, was apparently moribund but revived on being placed in water. This nymph I kept and fed with small earthworms during my homeward voyage and brought safely to Toronto. It was due to transform the following year but, probably owing to long immersion in water of a higher temperature than was natural to the species, it attempted to moult on October 30, 1928. Although emergence was a failure I succeeded in extracting the abdomen and could readily determine that the form of the ovipositor-valves was like that of *subarctica* and not *juncea*.

In 1931 I visited The Pas, Manitoba, and there, on July 11, I had the good fortune to find a newly-emerged male of *A. subarctica* with its exuvia. I also found three other exuviae of the same species (2 ♂ 1 ♀) on July 7, 9 and 10. *A. juncea* was also present here and had begun to emerge earlier. The exuviae were quite easy to distinguish from those of *subarctica* by their more obscure colour-pattern and duller lustre.

It is thus possible now not only to compare the exuviae of *subarctica* with *juncea* but also with *elizabetae*.

The exuviae of typical *subarctica* (text fig b) differ from those of *A. juncea americana* in the more polished and conspicuously marked dorsal surface, the pale longitudinal bands on the abdomen being more distinct; in the slightly slenderer abdomen, the still more vestigal lateral spines on seg. 6, the longer and more hooked cerci and the more slender lobes of the labial palpi.

Colour brown, a little darker than in *juncea,* the abdomen more conspicuously marked and more polished. Head and thorax, including the legs, concolorous, except for traces, sometimes obscure, of a pale postocular stripe, which borders the sides of the head and pronotum. Pale longitudinal abdominal bands




NYMPHS OF AESCHNA JUNCEA L. AND A. SUBARCTICA WLK.

conspicuous on the first five or six segments, becoming ill-defined caudad, where they are broken into pairs of anteriorly placed spots, the last and smallest pair being on segment 9; median dark area more distinct than in *juncea,* but fainter on segment 2, narrowed at the extreme base of most of the segments and darkened somewhat anterior to the dorsal puncta; sides of abdomen similar in colour to the median area, varied only by the darker puncta, the paler lateral muscle scars and an ill-defined pale streak just mesad of these scars.

Head and eyes as in *juncea;* mentum of labium (pl. 11, fig. 4) somewhat less expanded distally, the lateral margins of the wider distal part being less strongly sinuate and not converging distad to the bases of the palpi; proximal width equal to a trifle more than three-fifths of the distal width. Palpal lobes more slender than in *juncea,* being scarcely broader at their bases than the bases of the moveable hooks, slightly narrowed towards their apices, which are subtruncate, their outer angles well rounded, the inner angles barely toothed. Propleural processes as in *juncea,* or a little more prominent, with coarser scales (pl. 12, fig. 12); mesopleural processes (fig. 14) decidedly more prominent than in *juncea,* both obtusangulate. Abdomen slender, slightly narrower than the head across the eyes, reaching its greatest width at segment 6 (or 5), 5-7 being of nearly equal width. Lateral spines on 7 to 9, with a vestige on 6 in the form of a more or less acutangular prolongation of the tergal angle, (pl. 12, fig. 17) not noticeable from above; spines on 8 reaching two-thirds or three-fourths of the distance to the base of 9; those of 9 to the basal third or middle of 10. Paraprocts about as long as 9+10, their apices bent inward; cerci two-thirds as long as paraprocts, or very nearly so, their inner margins sinuate, apices tapering more abruptly than in *juncea* and decidedly incurved in the male; rudiment of inferior appendage of male adult three-fifths as long as cerci, similar to that of *juncea.* Apices of female gonostyli not quite reaching the hind margin of the ninth sternum.

Total length (mm.) 40-42 mm.; hind wing 7.0-7.5; hind femur 6.1-6.5; width of head 8.0-8.3; width of abdomen 6.7-7.5.

Described from four exuviae, 3 ♂ 1 ♀, The Pas, Manitoba, July 7-11, 1931.

The single exuvia which I possess of *Aeschna subarctica elizabetae* differs from typical *subarctica* in the following characters:

(1) There are not even vestiges of lateral spines on seg. 6. (pl. 2, fig. 18).

(2) The lateral spines on segs. 7-9 are all shorter, those on 8, e.g., extending only about half-way to the base of 9, and those of 9 only about one-fourth the length of 10 (fig. 7).

(3) The paraprocts are scarcely as long as segs. 9+10 and are not incurved at their tips (fig. 7).*

(4) The palpal lobes are broader, being intermediate between those of *juncea* and *subarctica.* (See figs. 3 and 4).

(5) The colour pattern is more uniform, the pale and dark longitudinal bands of the abdomen being as indistinct as in *juncea americana.*

*They are, however, described by Munchberg ('28) as being longer than segs. 9+10 and his figure shows their apices as decidedly bent inwards.

These differences between the nymphs of *Aeschna subarctica subarctica* and *A. subarctica elizabetae* appear to support the view that these forms represent different species rather than mere geographical races, but, with so little material of *elizabetae* for comparison, it is impossible to arrive at a definite conclusion.

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## EXPLANATION OF PLATES.

PLATE 11. Labia, ventral views.

Fig. 1 *Aeschna juncea juncea* L. Cierfs, Switzerland.
2. *juncea americana* Bart. The Pas, Manitoba.
3. *subarctica elizabetae* Djak. Black Forest, Germany.
4. *subarctica subarctica* Walk. The Pas, Manitoba.

PLATE 12.

Figs. 5-10, terminal segments and anal appendages, dorsal view; 11-12, propleural processes; 13-14, mesopleural processes; 15-18, postero-lateral angles of seg. 6, showing vestigial lateral spines.

Fig. 5. *Aeschna juncea americana*, female. Prince Rupert, B. C.
6. *subarctica subarctica*, female. The Pas, Man.
7. *subarctica elizabetae*, female. Black Forest, Germany.
8. *juncea juncea*, male. Cierfs, Switzerland.
9. *juncea americana*, male. The Pas, Man.
10. *subarctica subarctica*, male. The Pas, Man.
11. *juncea americana*. The Pas, Man.
12. *subarctica subarctica*. The Pas, Man.
13. *juncea americana*. The Pas, Man.
14. *subarctica subarctica*. The Pas, Man.
15. *juncea juncea;* A and B both from Cierfs, Switzerland.
16. *juncea americana;* A from Prince Rupert, B.C. B from Banff, Alberta.
17. *subarctica subarctica*. The Pas, Man.
18. *subarctica elizabetae*. Black Forest, Germany.

# NEW ANOBIID BEETLE FROM CANADA.

BY W. S. FISHER,
Bureau of Entomology and Plant Quarantine,
United States Department of Agriculture.

Specimens of an unknown Anobiid beetle infesting the woodwork of a house in Ontario were submitted to me by Prof. A. W. Baker, Ontario Agricultural College, Guelph, Ontario, for identification. It appears necessary to propose new names, both generic and specific, by which the species may be known.

## **Platybregmus** new genus.

Body elongate, subcylindrical, prothorax deeply excavated beneath for the reception of the head, which is received in repose upon the anterior coxae. Head feebly margined in front and strongly carinate around antennal bases; last joint of maxillary palpus elongate oval, pointed, very little wider than preceding joint; last joint of labial palpus broadly triangular, inner side slightly rounded, much wider than preceding joint. Antenna 11-jointed; first joint robust, oblong; second smaller and shorter; third to eighth short, narrow, not serrate; ninth and tenth compressed, elongate triangular; eleventh compressed, elongate oval; ninth, tenth, and eleventh joints united nearly as long as the preceding joints. Eyes moderately large, rather strongly convex. Prothorax strongly convex, narrower than elytra, lateral margins obliterated, except toward base. Elytra striate punctate. Front and middle coxae widely separated, the antennae received between them. Prosternum flat, truncate behind, and longitudinally carinate. Metasternum not or scarcely excavated in front. Posterior coxae narrow, nearly parallel, not dilated internally, but more or less sulcate for the reception of the femora. Femora not clavate. Tibiae rather slender, not compressed nor produced externally at apices; tarsus one-half as long as tibia, the first joint as long as the following two joints; tarsal claws slender, not toothed at base. Abdominal segments free, sutures distinct; first ventral segment as long as second; third, fourth and fifth shorter and subequal in length.

*Genotype.—Platybregmus canadensis,* new species.

This genus belongs to the tribe Anobiini, and is related to *Hadrobregmus* Thomson, but it differs from that genus in having the prosternum longitudinally carinate, the pubescence on the dorsal surface longer and more erect, and the lateral margins of the pronotum obliterated, except near the base.

## **Platybregmus canadensis** n. sp.

Uniformly dark reddish brown and subopaque. Head deeply sunk within the prothorax, the eyes partially covered in repose; front nearly flat, rather densely granulose, the granules distinctly separated, rather densely clothed with moderately long, semi-erect, brownish hairs. Pronotum narrower than elytra, about as wide as long; sides parallel in front of middle, feebly, arcuately expanded at middle; posterior angles obtusely rounded and sharply defined; disk evenly, strongly convex or feebly gibbose posteriorly; surface rather densely granulose, the granules prominent but distinctly separated, rather densely clothed with moderately long, recumbent and semi-erect, brownish hairs. Elytra twice as long as wide; sides parallel to apical fifth, then arcuately narrowed to tips, which are conjointly broadly rounded; disk strongly convex, each elytron with about ten deeply de-

pressed, longitudinal striae of approximate, coarse, subquadrate punctures; intervals about as wide as striae, rather strongly convex, finely, irregularly punctate and granulose, and densely clothed with longer and more erect, brown hairs than in the striae. Beneath rather densely clothed with moderately long, fine, recumbent, brownish pubescence; metasternum with coarse, irregular granules and fine punctures intermixed; abdomen rather densely, finely, uniformly punctate.

Length, 3.75—6 mm.; width, 1.5—2.1 mm.

*Type locality.*—Arthur, Ontario, Canada.

*Type and paratypes.*—United States National Museum. *Paratypes* in the Ontario Agricultural College.

Described from eleven specimens (one type). The specimens were all collected June 21, 1934, by S. B. Stothers, who reports them infesting maple flooring and elm beams in the basement of a house, but states that the pine in this house was not touched. The flooring has been in the house since it was built—about thirty years ago—and was originally secured from the owner's bush.

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## FOUR NEW SPECIES OF MYCETOPHILIDAE (DIPTERA)

BY ELISABETH FISHER,
Cornell University, Ithaca, N. Y.

While working over some specimens of Mycetophilidae in the Cornell University Collection, four new species were found. It seemed well to publish at once descriptions of these eastern forms in order to include them in the keys to appear in the "Diptera of Connecticut."

### **Bolitophila atlantica** n. sp.

Male. Length (slide mount) 5 mm. Head fuscous, antennae uniformly fuscous, palpi subfuscous. Thorax fuscous with three confluent stripes, humeri yellow. Abdomen brown. Coxae and legs yellow, tibia and tarsi brownish. Fore basitarsus about .9 as long as its tibia. Wings subhyaline with brownish veins and a pale subobsolescent stigma; subcosta ends at the level of the base of the radial sector; $R_{2+3}$ ends in $R_1$, the m-cu cross vein absent, $Cu_1$ having coalesced with M for a distance equal to one-half the length of the r-m cross vein. Length of the wing 4 mm. which is 1.07 times as long as the fore tibia. Halteres yellow with a brown knob. Hypopygium (fig. 1) dark brown.

One male collected by C. P. Alexander, Mt. Madison, N. H., in July.

Type in Cornell University collection.

### **Exechia shawi** n. sp.

Male. Length (slide mount) 4 mm. Brown and yellow. Head and antennae fuscous, scape and basal portion of first flagellar joint and palpi yellow. Thorax fuscous, humeri yellow. Abdomen fuscous, segments five and six darkest. Venter of two to four, yellow, the yellow of three and four extending up on the sides as triangular markings. Legs yellow, tarsi brownish. Halteres yellow. Hypopygium (fig. 2) fuscous. Propleural setae four; pleurotergites with at least four sub-prominent hairs. Wings hyaline; curvature of Rs moderate; fork of cubitus distinctly distad of the base of Rs. Fore basitarsus 1.12 as long as the fore tibia.

Four males collected by C. P. Alexander, Mt. Washington, N.H., in July.

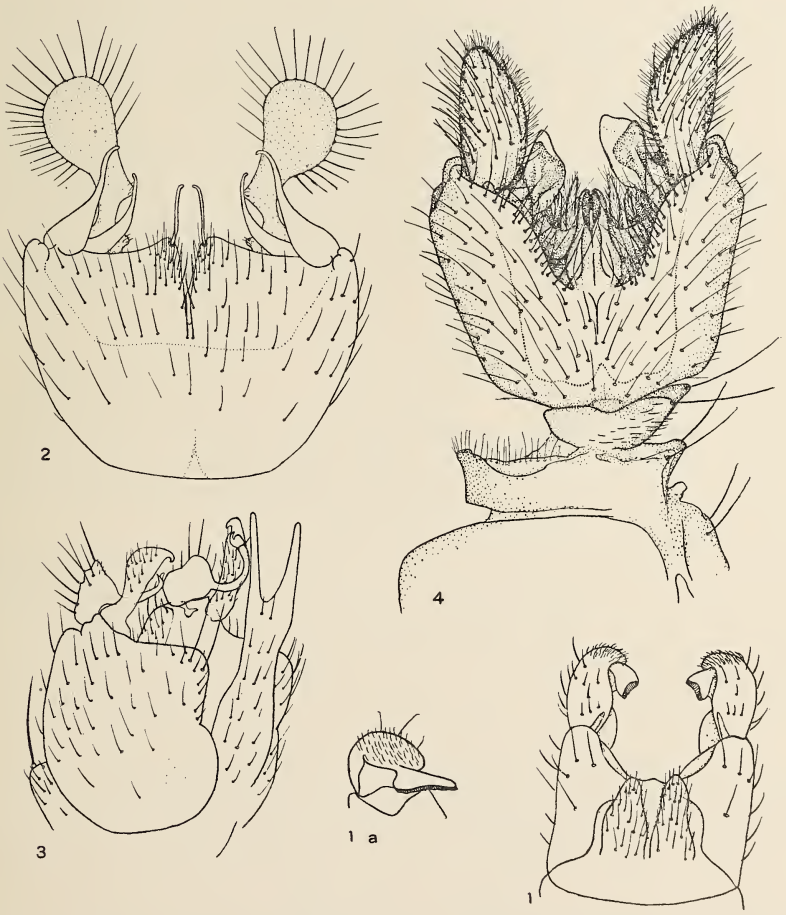
Type in the Cornell University collection.

## Exechia bifurcata n. sp.

Male. Length (slide mount) 5 mm. Brown and yellow. Head fuscous, antennae fuscous, scape and basal half of the first flagellar joint yellow; palpi subfuscous. Thorax fuscous; pleura and humeri lighter. Abdomen fuscous, posterior lateral margins of tergites one to six yellow. Knob of halteres fuscous. Legs fuscous. Propleura with three setae; pleurotergites with three prominent hairs. Wings hyaline; curvature of Rs conspicuous; fork of cubitus slightly distad of the base of Rs; Sc short ending in $R_1$. Fore basitarsus 1.10 longer than its tibia. Hypopygium (figure 3) fuscous.

One male collected by F. R. Shaw, Ithaca, N. Y., in November.

Type in Cornell University collection.




1. Bolitophila atlantica—dorsal view of hypopygium. 1a. Bolitophila atlantica—internal view of clasper. 2. Exechia shawi—ventral view of hypopygium. 3. Exechia bifurcata—ventro-lateral view of hypopygium. 4. Exechia ovata—ventral view of hypopygium.

This drawing made by D. B. Creager.

**Exechia ovata** n. sp.

Male. Length (slide mount) 5 mm. Brown and yellow. Head and antennae fuscous, scape and basal half of the first flagellar joint yellow; palpi yellow. Thorax fuscous. dorsum of mesonotum vittate, humeri yellow; pleura fuscous. Halteres yellow. Coxae, trochanters and femora yellow, tibia and tarsi brownish. Abdomen fuscous, posterior margins of tergites two to six yellow, sternites one to four yellow. Hypopygium (fig. 4) subfuscous. Propleural setae five; two prominent hairs on pleurotergites. Wing hyaline; Sc short, ending free; curvature of Rs not conspicuous; fork of Cu distinctly distad of the base of Rs; base of fork of M under the proximal end of the base of Rs. Fore basitarsus 1.15 longer than the fore tibia.

One male collected by F. R. Shaw, Ithaca, N. Y., in November.

Type in Cornell University collection.

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## ADDITIONS AND CORRECTIONS TO "A LIST OF THE BUTTERFLIES OF MAINE."

BY C. F. DOS PASSOS AND L. P. GREY,

Mendham, N. J.—Lincoln, Nebraska.

A few errors and omissions in the list of Maine butterflies as published in the Canadian Entomologist in August 1934, should be corrected as follows:

*Papilio troilus* Linnaeus. York Beach (Farquhar).

*Eurymus eurytheme* (Boisduval). A yellow specimen was taken at Passadumkeag. Fairly common this fall.

*Danaus menippe fumosus* (Hulst). Lincoln (Clayton).

*Phyciodes nycteis* (Doubleday & Hewitson). For *nyteis* read *nycteis.*

*Polygonia progne* (Cramer). For *I-argenteum* read *L-argenteum.*

*Basilarchia arthemis* (Drury). Recent records indicate a partial second brood

*Basilarchia astyanax* (Fabricius). York (Farquhar).

*Strymon ontario* (Edwards). The record cited has been found to be in error for *acadica* (Edwards), which leaves no Maine record.

*Incisalia irus* (Godart). Further records are needed to establish the authenticity of the old ones. This species has not been reported for many years. The specimen in the Fernald collection at Orono is *irus,* but has no data.

*Incisalia lanoraieensis* Sheppard. This recently described species (Can. Ent. June, 1934) is found on the bogs near Lincoln about thickets of young spruce. May.

*Lycaena epixanthe amicetus* (Scudder). Passadumkeag, June-July.

*Plebejus saepiolus* Bdv. *Insulanus* Blackmore is a race from Vancouver Is., B. C., and the Maine form should probably be referred to *saepiolus,* pure and simple.

*Polites peckius* (Kirby). Common. June-July.

*Polites mystic* (Scudder). Not rare. June-July.

# RECORDS OF SIPHUNCULATA AND MALLOPHAGA FROM CANADIAN HOSTS.

BY GORDON B. THOMPSON,

British Museum (Nat. Hist.), London.

The following records are based on material collected, for the most part, by Mr. W. E. Whitehead of the Department of Entomology, Macdonald College, McGill University. For the opportunity of examining this material I am indebted to Sir Guy Marshall, F.R.S., Director, The Imperial Institute of Entomology, London.

Previous records of lice taken from hosts in the Dominion of Canada are very few although there are numerous papers on these parasites found on birds and mammals of the United States which also occur in Canada. The following papers may be listed as containing records of lice from Canadian hosts:

Baker, A. W., (1915), Canad. Ent., XLVII, pp. 237-241.

Baker, A. W., (1919), Rept. Can. Arct. Exped., 1913-18, iii, pp. 1-11D.

Cameron, A. E., (1932), Dom. Dept. of Agr. Bull. 152, N.S., pp. 14-15.

Essig, E. O., (1926), Insects of Western N. America, pp. 126-138 and 192-198.

Gibson, A. Sci. Agr., XI, pp. 208-220.

Kellogg, V. L. & Ferris, G. F., (1915), Leland Stan. Junr., Publ., pp. 1-74.

Rayner, J. A., (1932), Sci. Agr. XII, pp. 307-308.

Spencer, G. J., (1928), Canad. Ent., LX, pp. 257-260.

Wickwire, A. B., Can. Vet. Rec., (1922).

## MALLOPHAGA.

### *Amblycera*

### *Gyropidae.*

*Gliricola porcelli* (Linn.) Syst. Nat., 1758, p. 611.

On guinea pig. Macdonald College, P. Q.

### *Menoponidae.*

*Menopon colaptis* Durrant. Ohio Nat., viii, 1908, p. 355, f. 1h.

On *Colaptes auratus*—(Flicker). Macdonald College, P. Q.

*Menopon gallinae* (Linn.) Syst. Nat., 1758, p. 613.

On *Numida meleagris*—(Guinea Fowl). Truro, N.S., and Macdonald College, P. Q.

*Myrsidea americana* (Kellogg). New Mallophaga, ii, 1896, p. 539.

On *Corvus americanus*—(Crow). Macdonald College, P. Q.

*Myrsidea dissimilis* (Kellogg). New Mallophaga, ii, 1896, p. 536, Pl. 73, f. 5.

On *Progne subis*—(Purple Martin). Macdonald College, P. Q.

*Menacanthus spiniferus* (Piaget). Les Pediculines, Suppl., 1885, p. 99, Pl. 10, f. 9.

On *Sturnus vulgaris*—(Starling). Macdonald College, P. Q.

*Machaerilaemus laticorpus* (Carriker). Univ. Nebr. Stud., iii, 1903, p. 190, Pl. 7, f. 5.

On *Euphagus carolinus*—(Rusty Grackle). Macdonald College, P. Q.

The specimens of this species were kindly compared with the type for me by Mr. M. A. Carriker Jr., and the host is a new host record for the species.

*Dennyus (Dennyus) dubius* (Kellogg). New Mallophaga, ii, 1896, p. 240, Pl. 73, f. 6.

On *Chaetura pelagica*—(Chimney Swift). Macdonald College, P. Q.

*Trinoton querquedulae* (Linn.). Syst. Nat., 1758, p. 612.

On *Anas platyrhynchus*—(Mallard). Wainwright, Alta.

*Bovicola bovis* (Linn.) Syst. Nat., 1758, p. 611.

On cattle. Truro, N. S., and Macdonald College, P. Q.

*Trichodectes ? canis* (Degeer). Mem. Hist. Ins., vii, 1778, p. 81, Pl. 4, f. 16.

On *Canis lycaon*—(Timber Wolf). Hearst, Ont.

*Eutrichophilus setosus* (Giebel). Zeit. f. ges. Nat., xviii, 1861, p. 86.

On *Erethizon dorsatum*—(Canadian Porcupine). Annapolis Royal, N. S.

PHILOPTERIDAE.

*Goniodes dispar* (Nitzsch), in Burmeister, Handbuch, ii, 1838, p. 432.

On *Perdix perdix*—(Hungarian Partridge). Quebec, P. Q.

*Goniodes tetraonis* (Linn.). Syst. Nat., 1758, p. 614.

On *Lagopus l. lagopus*—(Willow Grouse). Wolstenholme, P. Q.

*Anatoecus denatus* (Scopoli). Ent. Carn., 1763, p. 383.

On *Marila marila*—(Greater Scaup Duck). Quebec, P. Q.

*Philopterus californiensis* (Kellogg). New Mallophaga, ii, 1896, p. 483, Pl 66, f. 6.

On *Sphyrapicus varius*—(Sapsucker). Macdonald College, P. Q.

*Philopterus gonothorax* (Giebel). Zeit. f. ges. Nat. xxxvii, 1871, p. 450.

On *Larus hyperboreus*—(Glaucous Gull). Moose River.

*Degeeriella fusca* (Nitzsch), in Denny, Anopl. Brit., 1842, p. 118, Pl. 9, f. 8.

On *Circus hudsonicus*—(Marsh Hawk). Baie d'Urfe, P. Q.

*Degeeriella gracilis* (Nitzsch), in Burmeister, Handbuch, ii, 1838, p. 429.

On *Progne subis*—(Purple Martin). Macdonald College, P. Q.

*Degeeriella illustris* (Kellogg). New Mallophaga, ii, 1896, p. 494, Pl. 67, f. 4.

On *Aeglaius phoeniceus*—(Red-winged Blackbird). Baie d'Urfe, P Q.

*Degeeriella marginatula* Harrison. Parasit., ix, 1916, p. 117.

On *Colaptes auratus*—(Flicker). Macdonald College, P. Q.

*Degeeriella nebulosa* (Burmeister). Handbuch, ii, 1838, p. 429.

On *Sturnus vulgaris*—(Starling). Macdonald College, P. Q.

*Degeeriella picturata* (Osborn). Bull. Div. Ent., 1896, p. 226.

On *Sturnella magna*—(Meadow Lark). Macdonald College, P. Q.

*Degeeriella vulgata* (Kellogg). New Mallophaga, ii, 1896, p. 496, Pl. 67, f. 5.

On *Planesticus migratorius*—(Robin). Macdonald College, P. Q.

*Lagopoecus cameratus* (Nitzsch), in Lyonet, Mem. du Mus., xviii, 1829, p. 267, Pl. 4, f. 6.

On *Lagopus l. lagopus*—(Willow Grouse). Wolstenholme, P. Q.

*Columbicola columbae* (Linn.). Syst. Nat., 1758, p. 614.

On *Columba livia*—(Rock Dove). Macdonald College, P. Q.

*Esthiopterum crassicorne* (Scopoli). Ent. Carn., 1763, p. 383

On *Mareca americana*—(Widgeon). Wainwright, Alta.

*Esthopterum botauri* (Osborn). Bull. Div. Ent., 1896, p. 234.

On *Botaurus lentiginosum*—(Bittern). Baie d'Urfe, P. Q.

SIPHUNCULATA.

*Haematopinidae.*

*Haematopinus eurysternus* (Nitzsch). Germar's Mag., iii, p. 305.

On cattle. Truro, N. S., and Macdonald College, P. Q.

*Hoplopleura sciuricola* Ferris. Contrib. towards a Mon. Sucking Lice, ii, 1921, pp. 110-112, figs. 69 and 70.

On *Sciurus hudsonicus*—(Red Squirrel). Entrance, Alta.

SUMMARY OF THE RECORDS.

*Birds.*

| Host. | Parasite. |
|---|---|
| *Anas platyrhynchus* | *Trinoton querquedulae* (Linn.) |
| *Botaurus lentiginosum* | *Esthiopterum botauri* (Osborn). |
| *Chaetura pelagica* | *Dennyus (Dennyus) dubius* (Kellogg) |
| *Circus hunsonicus* | *Degeeriella fusca* (Nitzsch) |
| *Colaptes auratus* | *Menopon colaptis* Durrant |
| | *Degeeriella marginatula* Harrison |
| *Columba livia* | *Columbicola columbae* (Linn.) |
| *Corvus americanus* | *Myrsidea americana* (Kellogg) |
| *Euphagus carolinus* | *Machaerilaemus laticorpus* (Carriker) |
| *Lagopus l. lagopus* | *Goniodes tetraonis* (Linn.) |
| | *Lagopoecus cameratus* (Nitzsch) |
| *Larus hypoboreus* | *Philopterus gonothorax* (Giebel) |
| *Mareca americana* | *Esthiopterum crassicorne* (Scopoli) |
| *Marila marila* | *Anatoecus dentatus* (Scopoli) |
| *Numida meleagris* | *Menopon gallinae* (Linn.) |
| *Perdix perdix* | *Goniodes dispar* (Nitzsch) |
| *Planesticus migratorius* | *Degeeriella vulgata* (Kellogg) |
| *Progne subis* | *Myrsidea dissimilis* (Kellogg) |
| | *Degeeriella gracilis* (Nitzsch) |
| *Sphyrapicus varius* | *Philopterus californiensis* (Kellogg) |
| *Sturnella magna* | *Degeeriella picturata* (Osborn) |
| *Sturnus vulgaris* | *Menacanthus spiniferus* (Piaget) |
| | *Degeeriella nebulosa* (Burmeister) |

*Mammals.*

| | |
|---|---|
| Cat | *Felicola subrostratus* (Nitzsch) |
| Guinea pig | *Gliricola porcelli* (Linn.) |
| Cattle | *Bovicola bovis* (Linn.) |
| | *Haematopinus eurysternus* (Nitzsch) |
| *Canis lycaon* | *Trichodectes ? canis* (Degeer) |
| *Erethizon dorsatum* | *Eutrichophilus setosus* (Giebel) |
| *Sciurus hudsonicus* | *Hoplopleura sciuricola* Ferris |

# ON THE OCCURRENCE IN NORTH AMERICA OF THE EUROPEAN STAPHYLINID BEETLE DELEASTER DICHROUS GRAV.

BY G. CHAGNON.

University of Montreal.

Among some beetles kindly determined recently for the writer by Dr. H. C. Fall, was found a specimen of the European Staphylinid *Deleaster dichrous* Grav. As the species does not appear to have been recorded before from North America, I am giving below a short description of the insect, by which it may be recognized.

*Deleaster dichrous* Grav. Length 6.5 mm. Color reddish brown except head and abdomen which are blackish. Prothorax slightly cordate, narrower posteriorly than in front, with an impression on each side and another, transverse, on the middle near the base; abdomen smooth.

Two specimens taken by Rev. Bro. Jules, at Longueuil, near Montreal, Que., in June, 1934.

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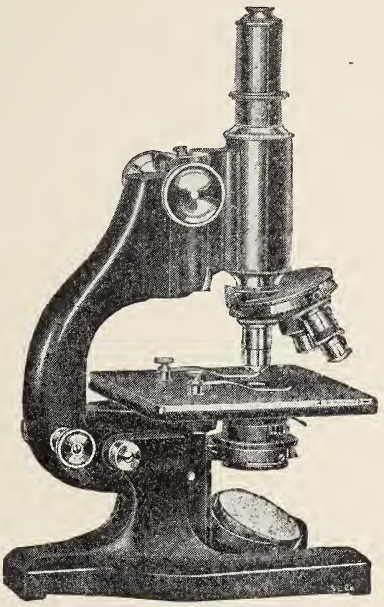

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